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Registered for posting as a Publication – Category B

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Published by Australian Microcomputer Journal P.O. Box 115, Carlton, Victoria, 462 Barwood Road, Hawthorn, Vic. 3122 Telephone: (03) 818 1448 Telex: AA3033 Sydney Office: 7th Floor 26 Ridge Street, North Sydney, 2060 Telephone (02) 929 4736

Consultants: John McColl, Mike Dennis, Michael James, David Hebditch, Sheridan Williams, Dr Adrian Stokes, Dr Stephen Castell.

Subscription Rates
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When he was 8, Dick Smith was given a soldering iron. It was not an expensive gift, but one which was to bring him the sort of wealth an 8 year old believes belongs in fairy-tales and the means to enjoy it in a style similar to Boys Own adventure stories.

It was the soldering iron which engendered Smith's interest in electronics - initially radios - ultimately leading to the development of Dick Smith Electronics, a business which in 1979-80 had a turnover of $17.2 million and a net profit of more than $2 million.

Today the company sells a huge range of stock, from tiny transistors to computers through 17 stores throughout Australia, excepting Tasmania and the Northern Territory. The sale last year of 60 percent of his retail business to Woolworths Ltd had the finance world gossiping and speculating for months about the millions he was likely to have made. (Smith concedes, "yes, you could say I made a few bob.")

Discussing the deal, he reveals that "the business was just too big with a $17 million turnover in 1979 and probably more than $20 million in 1981. I simply don't enjoy owning something that has such enormous overheads; and I'm under constant pressure to expand."

The dedicated radio buff has come a long way since he left North Sydney Technical High, which he hated, and began work as a radio apprentice, pop rivetting pieces of metal together all day.

His apprenticeship was short-lived however, and Smith decided to return to the classroom - at Sydney University. But, deciding that the university was not for him and despite passing the 'fairly technical' ham radio license at 16, that he would never graduate, Smith returned to radio work.

He went through several jobs, including repairing radios at home at nights (in an effort to earn enough money to repair the car he
had bought) and repairing two-way car radios.

During this period Smith's interest in scouting, fostered by his childhood love of the outdoors and adventure, continued. He spent many weekends away bushwalking and rock climbing. He loved the outdoor life and his lifestyle today reflects this.

'I never attempt to do anything unless there is a fair chance I will succeed'

After careful saving, he took time off for the 'European trip' and spent considerable time mountaineering, rock climbing and caving in Europe. When he returned to Australia, Smith wanted to further his interest in the outdoor life and attempted to get a job as a National Parks ranger.

It was a friend, already working for the National Parks, who dissuaded him. Knowing of his bent for electronics, he convinced Smith he would be much better off staying with the industry.

Another friend, the late Dr Tony Balthasar, who had a longterm interest in electronics, had sufficient confidence in him to financially back Smith's first business.

By this time he had met Philippa (Pip) and married her when she was 19 and he was 24. They gave themselves two years of seven-days-a-week hard work to succeed, and after six months were making a small fortune. They had a cab company's radio tied up and motorists, attracted by the hand painted advertisement on top of Smith's old car, were arriving in hordes.

After three years, succumbing to the temptation to diversify, Dick Smith Wholesale, an electronics parts business, was established. Five months later stock worth $18,000 was stolen and Smith was advised to liquidate the firm. But he called together creditors and explained that he was going to take the hard option and trade out of the company's financial difficulties to pay back the debts. Pip left her secretarial job to assist him, and Smith took out a personal loan to pay off sales tax.

However by 1974, two years after the company went into voluntary receivership, Dick Smith Wholesale had broken even and was trading more vigorously than its competitors. Six years later it led the market.

Dick Smith has stayed on top since, "I'm a realist," he says. "I never attempt to do anything unless there is a fair chance I will succeed. I didn't continue with university because I could see I would fail. I was utterly hopeless. I don't try anything I'm hopeless at."

As well as a realist, Dick Smith is a fun-loving optimist with an easy attitude to life. "With a bit of lunacy you can get a lot out of life," he says. "I'm a simple guy, not at all devious or cunning or mysterious, I do things that give me a kick."

His lifestyle is not sophisticated, although it is flamboyant at times. Smith doesn't drink or smoke, he takes cut lunches to work in re-cycled paper bags and prefers an old Ford to the Rolls Royce he could afford. His idea of a great meal is steak, egg and chips followed by apple pie and ice-cream. He and Pip avoid a high revving social life.

His two children, Hayley and Jenny attend a state primary school. Smith says he has no long-term aims apart from maintaining the status quo.

"There is nothing I want to do because I am already doing it. And I never plan anything more than two weeks in advance so it's difficult to talk about what I might want to do in the future."

On many occasions Smith has been accused of being an outrageous publicity seeker, carrying out stunts such as attempting to cross Sydney Harbour Bridge on a petrol-powered pogo stick, floating a fake iceberg up the Harbour, hiring jumbos for flights to the Antarctic, jumping a bus over 16 motor cycles and mounting expeditions seeking lost ships. He denies these are deliberately mounted as attention-getters.

It's simply that he prefers to spend most of his time pleasing himself, and can afford to do so. He admits only to being an entrepreneur. The boy scout adventuring of his youth has been transferred to adulthood, with some of the pranks thrown in for good measure.

"It doesn't really worry me that some people say I do these things just for the publicity," he says. "I don't mind them thinking that, but it's wrong. I do the things I do, such as the Antarctic flights, because I want to do them. People are always trying to make things more complex than they really are."

The same evaluation applies to his April Fool Day stunts, such as the iceberg and the pogo stick, and this year his full-page advertisement in metropolitan newspapers which claimed Smith's 'amazing electronic invention', a print graded circuit, (P.R.I.C. for short), could be printed onto the page of a normal newspaper. The reader was requested to hold the page up to the light to carefully examine the inside of the circuit — and showing through in bold type were the words 'April Fool'.

"I stage these pranks because I like having fun," he says, "but I'm very careful that anything I do does not offend. My pranks are not unkind practical jokes. They must be completely responsible."

However, in spite of his views about the publicity angle, Smith admits they have been good for business and good for him personally. "People now recognise me. It's no longer a problem being Dick Smith." He was at one time so self-conscious about his commonplace name that Dick Smith Electronics was almost called Alltronics. "A cousin of mine in advertising steered me right. He convinced me that even wealthy people would bring their Rolls and Mercedes to be fitted with radios by a guy called Dick Smith."

'It's no longer a problem being Dick Smith'

Today, Smith's business takes up less and less of his time. He is far from a workaholic, and leaves the everyday running of his business to dependable executives on whom he relies to plot the firm's strategies.

"People think I alone run the business. I don't. I have very good people."

The people he refers to include the likes of dynamic general manager, Ike Bain. It was Mr Bain
who conceived the weekly video-cassette chat from Smith which is relayed to all stores.

Dick Smith appears showing and demonstrating new components. He asks store managers which items they want to stock. Only those that more than half of the managers think will sell go on to the shelves.

Dick Smith Electronics has created around 250 jobs, a fact Smith is proud of, particularly when he remembers his early days. He recalls, "I had no ambitions because I was so naive. I thought the ultimate was to have two or three people working for me."

By June 30, 1983, Smith hopes his company will have 25 stores with a turnover of $25 million, and branches in North America by 1985. He believes the area of greatest sales potential locally is micro computers for the hobbyist. "Our customers are electronic enthusiasts," he says, "and are always interested in the latest 'gadget'. For about the last three years, that 'gadget' has been the computer and will continue to be so for some time."

It is not hardware Smith sees as the field he will develop, but software packages. "We are working on developing totally Australian-written programs which will have relevance in local applications," he says. "The majority available now are written in the US and often don't apply here. For example, an American general ledger is very different from an Australian one. I think it's essential that the program is familiar to a person who was doing general ledger manually previously and then switches to computer. It must apply to a non-computer user as well. What I am looking towards is providing fully Australian written programs."

Smith would also like to develop his educational programs and increase supply to schools.

"I believe that through the government purchasing system, many of the computers being supplied to schools are unnecessarily expensive. I think purchases are being made from the Rolls Royce range when something a little lower down the line would be just as adequate, and could mean the school or institution could install two or three instead of just one top of the line model."

"I think teachers are beginning to understand and appreciate this rationale and realising that although a less expensive model may not incorporate all the features of a top of the line one, it still proves staggeringly sufficient for school installations. "Although we are not on the government list we are still selling to schools and I feel it is an area in which we will grow."

Dick Smith is now a household name. Yet it is less than 10 years since he parked his 'old bomb' illegally near golf clubs, bridges and other vantage points to advertise his one and only shop. Using a megaphone he would raucously advertise his wares on Saturday mornings while Pip served behind the counter.

Six years ago he was unable to get a building society to lend him $25,000 for an old house in Greenwich. His house today incorporates an indoor swimming pool, a theatre and film editing offices. He owns a helicopter, which he uses as most people use a car, and is currently in the midst of arranging a dog sled trip to the South Pole, scheduled to take place in November 1982.

He is renowned as an electronics whiz kid, a social activist, explorer, film-maker, millionaire, entrepreneur, philanthropist, sceptic, and a 'nice guy.'

He still lives an uncomplicated Boys Own adventure existence, refusing to let success alter his almost childlike delight in the fun of life.

His explanation is simple: "The deep psychological truth is I do things that give me a kick".
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A program to produce a cross-reference table for all the variables in a program under development is a useful tool, such as a table enables one to determine whether and where a variable label has been used. Unfortunately, a variable's cross-reference program in Basic is not available in the literature although the development of one was reported by William and Alice Englander, *Nybbles: Basic Cross-Reference Table Generator*, Byte Vol 4, 4:190 (April 1979).

SEARCH/CHANGE takes about 2.5 minutes to search 8.5 Kbytes. On the plus side, the extra length and sacrifice in speed buys
1. the option not to search or to search a string,
2. the option to have listed the lines that contain the sought item, and
3. the option to replace the sought item by anything of equal length.

Because of the limitation on length in the CHANGE function, this feature is not really a general purpose program editing tool. Nevertheless, it is quite useful in dressing up variable labels or changing, say, a real variable to an integrator variable.

**Demonstration**

To do a search/change, the SEARCH/CHANGE program must be appended to the program to be searched. Once the programs are read, enter the search item as line 1 and the change item, if any, as line 2. Then a RUN 63000 starts the works.

**Figure 1:** Listing of Demonstration Program

```
10 FOR I = 1 TO 5
20 PRINT "DOGS AND CATS FIGHT:"; NEXT: PRINT
30 INPUT "GIVE NUMBER OF CATS" : CTS : PRINT
40 INPUT "GIVE THE NUMBER OF DOGS" : DOG : PRINT
50 IF CTS = 0 AND DOG = 0 THEN END
60 PRINT "THE PROBABLE WINNER IN A CAT-DOG FIGHT": PRINT "WITH": DOG " DOGS AND": CTS "CATS"
70 IF DOG = 0 THEN PRINT "***": CTS " CATS": END
80 IF CTS = 0 THEN PRINT "***": DOG " DOGS": END
90 IF RND (1) * CTS / DOG > .5 THEN PRINT "****": CATS " CATS": END
100 PRINT "****": DOGS " DOGS": END
```

To demonstrate the workings of SEARCH/CHANGE, we use the rather nonsensical program listed in Figure 1. We enter the search item DOG as line 1 and run 63000. The print-out of this run is given in Figure 2. Every appearance of the three consecutive letters DOG is listed. Had we asked for the lines to be listed, a given line would have been listed only once.

We can search for anything; Fig. 3(a) shows the result of a search for equal signs. However, we do have to be careful of Applesoft’s reserved words. Figure 3(b) shows what happens if we try to search for CAT. Applesoft recognizes the reserved word AT in CAT. This makes clear the need of having the program list for verification the search and change items.

The reserved word problem is a relatively minor nuisance. A little ingenuity can get us around it. In the CAT case, we could search for CA; if that gave too many other items, we could then search for TS and only consider the lines that appear in both lists.

The CHANGE function, as well as the line listing feature, is demonstrated in Fig. 4. Again caution is wise. What if we had already used the DGS label in our program? There would be no way later that we could separate the old DGS from the new DGS. If in doubt in changing a label, first make a search to see if the new label is already being used.

In changing the variable label from DOG to DGS, we did not want to change the word DOG inside strings, hence did not search strings. The capability of not searching strings or only searching strings provides all the flexibility we ever need.

We note that we can only change an item to one equal in length (as APPLESOFT sees the length). Extra length in the change item entered as line 2 is ignored. If the replacement is shorter than the search item, things go awry. The result is a muddle, correctable in general only by a start over from scratch.

**Design**

A few comments on the design of the SEARCH/CHANGE program are offered here in lieu of remark statements in the program itself. First the program identifies the search item, FOR loop lines 63040-63070. Then it identifies the change item, if any, FOR loop line 63110 and preceeding line. The search is carried out by FOR loop lines
Fig. 3: Other SEARCH Demonstrations

(a) Search for equal signs

THE ITEM
1 =
IS FOUND IN THE FOLLOWING LINES:
10 50 50
70 80

DO YOU WANT THESE LINES LISTED (YES OR NO)? NO

(b) Attempt to search for CAT

1 CAT

RUN 63000

1 CAT

PLEASE VERIFY IF THE COMPUTER TAKES THIS AS YOU INTENDED: DO YOU WANT TO CONTINUE (YES OR NO)? YES
DO YOU WANT TO SEARCH INSIDE STRINGS (YES OR NO)? YES
DO YOU WANT TO SEARCH STRINGS ONLY (YES OR NO)? NO

THE ITEM
1 CAT

IS FOUND IN THE FOLLOWING LINES:

NONE.

63130-63170. To get the best operating speed, we close the FOR loop within a single line (line 63130) if no byte of significance is found. Even so, the testing for up to three conditions takes time. If one of these conditions is not met, then the following lines either pass to subroutine line 63300 to complete the item identification test and make the item change (if one is entered), or set the string's search flag, or start the search of the next program line, whichever is indicated. Line 63120 determines that the search is over when line 62999 is reached and passes to output. The routine lines 63220-63290 accomplish the line listing feature. Note that the search for the LIST command is backwards from the end of the program (we know that the one we want is the last one). Also note that the line number has to be poked in so that there should always be five digits following LIST. After use of the program, the actual number that appears here when the line 63170 is listed is the last number poked in. There should be leading zeros if that number had less than five digits. The Applesoft interpreter preserves these leading zeros whereas the 3.2 DOS renumbering program does not. If you want to renumber SEARCH/CHANGE, remember to check this line and, if you want to, change the 62999 in line 63120.

Fig. 4: CHANGE Demonstration

RUN 63000

1 DOG
2DGS
PLEASE VERIFY IF THE COMPUTER TAKES THIS AS YOU INTENDED: DO YOU WANT TO CONTINUE (YES OR NO)? YES
DO YOU WANT TO SEARCH INSIDE STRINGS (YES OR NO)? NO
DO YOU WANT TO SEARCH STRINGS ONLY (YES OR NO)? NO

THE ITEM
1 DOG

IS FOUND IN THE FOLLOWING LINES:
40 50 60
70 90

DO YOU WANT THESE LINES LISTED (YES OR NO)? YES

THERE WILL BE A WAIT AFTER EACH LINE UNTIL YOU HIT RETURN TO CONTINUE.

40 INPUT "GIVE THE NUMBER OF DOG S ", DGS: PRINT
50 IF CTS = 0 AND DGS = 0 THEN END
60 PRINT: PRINT "THE PROBABLE W INNER IN A CAT-DOG FIGHT": PRINT "WITH ", DGS, " DOGS AND ", CTS "; CATS WOULD BE";
70 IF DGS = 0 THEN PRINT "***** CATS*****": END
90 IF RND (1) * CTS / DGS > .5 THEN PRINT "*****CATS*****": END

Fig. 5: Listing of SEARCH/CHANGE Program

62999 END

63000 DIM SFEK(100), NT(100), L(10)
0: START = 256 * PEEK (104) + PEEK (103): FINI = 256 * PEEK (106) + PEEK (105)
63010 IF 256 * PEEK (START + 3) + PEEK (START + 2) < 1 THEN
PRINT "YOU MUST ENTER YOUR SEARCH ITEM AS LINE": PRINT "1 BEFORE YOU RUN 63000.": END

63020 LIST 0, 2: PRINT "PLEASE VERIFY IF THE COMPUTER TAKES": PRINT "THIS AS YOU INTENDED: DO YOU WANT": INPUT "TO CONTINUE (YES OR NO)? "; Y$: IF Y$ < > "YES" THEN END

63030 PRINT "DO YOU WANT TO SEARCH INSIDE STRINGS": INPUT "(YES OR NO)? "; Y$: PRINT "DO YOU WANT TO SEARCH STRINGS ONLY": INPUT "(YES OR NO)? "; Y$: IF Y$ = "YES" THEN SO = 1; Y$: "NO"
63040 FOR 1 = 0 TO 255
63050 SEEK(1) = PEEK (START + 4 + 1)
63060 IF SEEK(1) = 0 THEN N = 1 - 1: GOTO 63080
63070 NEXT
63080 M = START + N + 6
63090 CH = 0; IF 256 * PEEK (M + 3) + PEEK (M + 2) < 2 THEN
CH = 1: GOTO 63120
63100 IF N = 0 THEN NT(0) = PEEK (M + 4): GOTO 63120
63110 FOR 1 = 0 TO N; NT(1) = PEEK (M + 4 + 1): NEXT
Tasmania has a strong community of educational Apple users, Apple uses with TASNET and to support Pascal at the University of Tasmania. The Tasmanian Apple Users Group participated in other Australian user groups and the International Apple Core. The group meets on the 3rd Tuesday of each month at various locations. Tasmania's Apple Users Group is negotiating to manufacture the card. The latest firmware release for the card includes a communications driver that will send and receive text files from disk. The firmware has been updated several times recently, so purchasers should check which version they receive and should also check that they receive the lower case version wire. Contact Harry or Ken at Zafary Enterprises (02) 797 8832 with any enquiries.

Several of the US microcomputer magazines have refused to accept advertisements for 'bit copier' programs in the interests of the industry. The battle between Apple software authors and Locksmith has resulted in a continual series of Locksmith updates. The latest tool for breaking protected programs is the little card, developed by Jon Rowlands, that allows access to memory by generating a NMI whenever a switch is pressed.

Apple Assembly Language is a new book written and published by Reward Books (distributed by Prentice Hall). This book is for Apple users who do not have assembly language experience. Experienced users will find this book very tedious. The book is based on the mini-assembly in the old monitor ROM (available from your local user group if you have the autostart ROM) and introduces assembly language by talking directly about assemblers. If you are a frustrated Assembly programmer try this book. Experienced programmers would try the Sybex or Mostek books and professionals should start with Lewenthal's 6502 programming book.

The Pascal 1.1 update is a significant enhancement of APPLE's UCSD Pascal system. Many of the bugs and problems in the previous version have been fixed and a large number of features have been added. A 1.11 update disk has been released with the ATTACH feature and patches for some of the bugs in APPLE FORTRAN. The disk is available from George Tahmindjas at Electronic Concepts. Pascal resources have become easier to find with the release of the UCSD user group disks and a major article on Pascal appeared in the April issue of Call-Apple. The latest IAC disk is a Pascal disk with a commented source listing of Pascal 1.0 BIOS. The SOURCE file is mailed to those interested with current information and discussion from the Apple community. Pascal 1.1 users may be interested in these notices taken from the SOURCE.

Subject: PASCAL 1.1 LOWERCASE MOD. From: CLO542 Posted: Thu 2-Apr-81 20:37 Sys 12.
ADD TO LOWERCASE FOR YOUR APPLETYPE (NOT FOR L.C. ADAPTER TO NEW PASCAL)

.PROC LCASE
NOP
LDA OC083
LDY [STA ODA0]
STA ODA0
STA ODA0
LDR OC08
RTS

-END MACHINE CODE POKES
(*PASCAL PROGRAM FOLLOWS*)

PROGRAM ALLOWER;
("THIS PROGRAM PATCHES BIOS FOR LCASE")(*BY BRIAN MORAN APRIL 2, 1981*)

PROCEDURE LCASE; EXTERNAL; BEGIN WRITELN (THIS PROGRAM PATCHES BIOS LOWER CASE); LCASE;

END

Brian Moran can be contacted via (SOURCE CLO542) mailbox if you want to discuss Pascal 1.1 BIOS.

The availability of the Electromed series 700 acoustic coupler has created a lot of interest in Bulletin Board systems and the US public database systems, SOURCE and MICRONET. Access to information from Australia is available at reasonable cost through the TELECOM MIDAS satellite link. SOURCE subscriptions are available in Australia, but a Mastercharge or Visa card number is required. Users outside of Australia should be wary of the communications software available from the SOURCE and should invest in a copy of ASCII EXPRESS instead. Both programs have a common ancestry but ASCII is a much better program. Unfortunately the program has a bizarre protection scheme that has caused some users problems with the 3.2 version. If you use ASCII avoid any version from Australia as it is the 3.2 version and use FS2.2M instead. The program is configured for the Apple comm card but can be easily changed for any serial card. I am interested in hearing from anyone who has used or heard about SOURCE (TGL442) or MICRONET (70340.314) users via mailbox. A Bulletin Board system has been under development in Sydney for several months and an announcement concerning public access is expected next month.

Several teachers have asked for a routine to stop students using RESET to interrupt programs. Page 57 of the Reference Manual explains how to change the reset vector, if your Apple has the autostart ROM. If the Reset vector is pointed at the AppleSoft Run command code ($D566) then the program in memory will restart whenever RESET is pressed.

From Basic: POKE 1010, 102 : POKE 1011,213 : CALL -1162

If you want to restart the program from a particular line then set the appropriate Applesoft pointers and use the NEWSTT routine at $D7D2. Consult the AppleSoft internal entry routines article in the first issue of the Apple Orchard for further information.
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See Page 104 for a Complete List of Dealers.